APPENDIX A

# ARCHITECTURE

## A-1. Definition

Architecture is fundamentally a technical construct that applies to the software, hardware, and telecommunications components of an information system. Architecture is intended to expand the usefulness and extend the life of information systems through application of continuously evolving technical factors.

## A-2. Operational Architecture

Operational architecture (the functional integrator) ensures connectivity to business functions and that information flows between functions.

*a. Total Army Medical Department System Management*. A "total system management" performs integration functions to ensure that information systems are correctly designed and integrated into the broader health care delivery system or subsystem they are tasked to support. This "total system management" concept designates a system manager to represent the user community. Ultimately the system manager is accountable for recommending whether or not a given system works in the user's operational context and if it is supportable within the operational environment. If, from a functional or cost-effectiveness point of view, the system manager deems a project to be ineffective, he has the duty to recommend project termination to the MEDCOM commander. From a cost point of view, the earlier a project is terminated because of lack of functionality or affordability, the better.

*b. Corporate Requirements Development*. The AMEDDC&S commander is responsible for identifying and documenting information requirements placed upon the AMEDD corporate body from external organizations that would not be otherwise identified by other medical organizations within the Army.

*c. Requirements Integration/Prioritization*. The AMEDDC&S commander is responsible for evaluating common requirements from all Army medical organizations to identify those essential to the CHS mission. He is responsible for identifying and forwarding those requirements that should be addressed by DA or DOD activities. He is responsible for monitoring existing projects or programs at DA and DOD levels to determine if they meet medical requirements and if they can be integrated into the medical information system. He prioritizes requirements based on the degree of impact they will have on the ability to carry out the corporate strategy. Considerations include consistency with Army policies, cost-benefit analyses, scope of impact, and feasibility of solution. This decision process requires input from both the customers and the information management community, but the customer community is accountable for the final prioritization. Individual customers (units, RMCs, and MTFs) retain the option to pursue independently resourced projects.

*d. Functional Input Coordination*. The AMEDDC&S commander coordinates functional input from across Army medical organizations for requirements development and system LCM activities, both internal and external to medical organizations. A key role is to educate the individuals involved in providing this input to ensure that they represent the requirements for Army medical organizations overall and not individual needs and desires.

*e*. *Business Process Analysis and Reengineering*. The AMEDDC&S commander assists facilities in analyzing their approach to accomplishing mission requirements to include providing unbiased assistance to users by defining business issues or problems and looking for sources of assistance. These sources of assistance are not limited to information systems applications, but should include the best approaches from all DTLOMS domain support.

*f*. *Account Servicing (Strategic Consultant Services)*. The AMEDDC&S commander provides consultation services and assistance to specific organizational clients (for example, the MSCs). The role is to assist clients in determining the specific type of need/requirement to be submitted to the AMEDD corporate body for resolution. This requires a thorough understanding of the client's organization missions, strategies, objectives, and business processes.

*g*. *Training and Functional Implementation*.

(1) *Training*. The AMEDDC&S commander coordinates all training requirements for information mission areas across the entire spectrum of Army medical personnel, facilities, and operations.

(2) *Functional implementation*. The AMEDDC&S commander manages the activities required to train users in how to use a new information capability in a facility or unit. In addition to basic functionality training, this process involves assessing existing business processes and determining how to integrate the new system or capability into these processes. Training will be consistent with TOE and TDA units. He assists the facility in learning how the system can enhance mission accomplishment through inherent efficiencies of automation, as well as a thorough understanding of how data from the system can help managers make optimal decisions.

*h*. *Operational Test and Evaluation*. The AMEDDC&S commander is responsible for the management and testing of newly acquired information capabilities by functional users. He ensures their needs are met and other existing systems are not adversely affected.

## A-3. Technical Architecture

The technical architect, together with technologists, establishes a set of technical rules to enable the systems architect to ensure compatibility and interoperability. The technical architect's functions include—

- Facilitating the architecture process.
- Writing policy.
- Assuring publication of the architecture documents.
- Conducting public relations.
- Conducting liaison with medical and nonmedical organizations within the Army.

- Auditing systems to assess efficacy and ensure compliance.
- Ensuring the medical information systems meet the following objectives:
  - Common operating environment.
  - Open architecture.
  - Seamlessness.
  - Easily accessible by both Army and Joint users.
  - User friendly.
  - Effective and efficient.

## A-4. Systems Architecture and Management

The systems architect seeks to identify relationships among C4I components of systems and create physical connectivity within the information system. He uses an organizational context to show system allocation and network structures and helps document engineering decisions, such as specific information protocols and bandwidth. The system architecture includes—

*a. Information Management Systems Standardization and Integration*. This system integrates data and process models. The COI for information management functions ensures that the appropriate technical input is given to the AMEDD architect. He provides assistance and oversees individual projects to facilitate use of the architecture in program development.

*b. Account Services (Information Management Materiel)*. The MRMC commander provides information management consultant services and assistance to organizational clients. His role is to assist clients to understand the opportunities and limitations of information resources and to, if appropriate, assist the client to find an information management solution to an identified requirement.

*c. Program and Product Management*. Inside the current AMEDD one staff operations architecture (referred to in Chapter 2 and Chapter 3), the commander of MRMC is responsible, at the strategic level, to the Deputy Surgeon General (COI) for the management of US Army Medical Information Systems Support Agency (USAMISSA) (COO) (see Figure 2-1). The COO must first be issued guidance, expressed in a statement of work, by the accountable customer (the bill payer) before commencing development of any new systems. After USAMISSA designs, develops, or purchases an information system and ensures it meets the desired specifications, the system is purchased for Army medical organizations. It is the responsibility of USAMISSA to manage the resources (both financial and personnel) required for fielding of these systems into Army Medical organizations. All systems must pass both developmental and operational testing and evaluation before being adopted into the communications overall system inventory.

*d. Life-Cycle Management/PPBES Linkage*. The systems architect provides the required supporting resource documentation, including cost estimates, for specific information systems and capabilities used in the process of resource coordination at the MEDCOM staff level. He coordinates all LCM milestones-related documentation and ensures that resource planning incorporates the full life cycle of a given system.

*e. Documentation and Training Support*. The systems architect provides AMEDD-specific documentation and training programs and materials for information management systems. He ensures that all training requirements for the systems managed by MRMC are documented in an acceptable format to train managers at the AMEDDC&S.

*f. Design/Engineering*. The systems architect provides the technical and functional skills required to develop, acquire, and maintain the capability to meet an established requirement. He ensures that all systems are based on approved data and process models. He provides technical assistance to customers in developing these models to ensure that all new capabilities and processes are integrated into existing information environment systems and documents all developed models.

*g. Application Specialists*. The application specialists provide consultation and support services to specific functional areas on the best way to apply information systems and information technology in support of that function. This requires an understanding of how information technology is applied to a specific purpose, data set, or system and, therefore, requires both technical and functional area skills.

*h. Core Technologists*. Core technologists provide their expertise in technologies such as networks, databases, and user interfaces to be used in cross-functional teams assembled by project managers or on an ad hoc basis by application specialists to solve system-specific problems. This expertise is not limited to a specific purpose, data set, or system.

*i. Developmental Test and Evaluation*. Developmental tests and evaluations will determine whether a system developed meets the requirements as specified.

*j. Common Infrastructure Operations/Management*. The Director, USAMISSA operates and manages the AMEDD communications network (including interfacing with external networks) and any centralized data storage and processing centers in compliance with the published AMEDD architecture. He coordinates and monitors communications and data security for the AMEDD. He ensures continued modernization of the infrastructure by monitoring external activities (industry, Army, DOD) and participating in the planning and architecture processes.

*k. Technical Services*. The Director, USAMISSA (more specifically, Division C, Technical Services Branch within USAMISSA) serves as point of contact for maintenance problems; provides technical consultation; maintains information system asset inventories; maintains the continuity of operations; and provides help desk assistance.

*l. Technical Implementation*. The Director, USAMISSA provides all the required technical assistance to individual sites for installation of required hardware/software for specific systems. He ensures

that all new systems are integrated into the existing information systems environment at a facility and that existing systems are not adversely affected. He trains the facility's information system operators on technical aspects of system operation. Individual sites retain control of all implementation activities as long as they comply with published architecture.

*m. Customer Support "Help Desk."* The Director, USAMISSA provides direct support to all information systems users. He is accountable to the customer for the resolution of all information-related problems, including those that have been elevated to other sources of assistance. He manages all problems that cannot be resolved with the help of desk personnel by assigning them to the appropriate resource within the information management services organization.